Graphite

UDC: 621.3.035.2

USSR

LUTKOV, A. I., VOLGA, V. I., DYMOV, B. K., DEMIN, A. V., RAKCHEYEVA, V. I., and PERKOVA, G. A.

"Investigating the Effect of Refractory Elements on the Thermal and Electrical Conductivity of Graphite"

Moscow, Tsvetnyye Metally, No 8, Aug 70, pp 48-51

Abstract: The recent development of a method for graphite production involving thermomechanical processing under pressure has led to the diffusion of contaminants in the graphite. These contaminants react with the carbon to produce materials whose thermal and electrical conductivity characteristics are very sensitive to crystal structural defects caused by the contaminants. The purpose of this article was to investigate graphite obtained by this thermomechanical processing of coke into which refractory elements such as Ti, Si, Zr, and B, were introduced. The procedure for measuring the thermal and electrical conductivity in the temperature interval of 80-2500° K is the same as that used in an earlier paper written by the first-named of the authors above, in collaboration with others (Collection "Konstruktsionnyye materialy

1/2

USSR

LUTKOV, A. I., et al., Tsvetnyye Metally, No 8, Aug 70, pp 48-51

na osnove grafita" -- Structural Materials Based on Graphite -- 4th edition, published by "Metallurgiya," 1965, p 59). A brief description of the thermomechanical procedure is given. The authors found that the heightening of the material's plasticity, the result of the interaction between the carbon and these refractory elements, affects the properties of the product. They found also that boron, which is a close neighbor of carbon in the periodic table and has a practically equal atomic radius, can replace the carbon in the graphite lattice. It was noted that the presence of boron promotes the graphitization process. Curves of the thermal and electrical conductivity of the graphite as functions of the temperature in the graphitization furnace, for various concentrations of the refractory elements, are given.

2/2

USSR

UDC 546.26-162

LUTKOV, A. I., VOLGA, V. I., DYMOV, B. K., LUKINA, E. YU., and TAMARIN, P. V.

"Thermal and Electrical Properties of Pyrolytic Graphite"

Moscow, Izvestiya Akademii Nauk SSSR, Neorganicheskiye Materialy, No 8, 1972, pp 1409-1416

Abstract: The authors studied the thermal and electrical properties of pyrolytic graphite produced by deposition of the products of pyrolysis of methane at 5-10 mm hg on the hot surface of polycrystalline graphite. Due to the comparatively low deposition temperature (2100°C), this pyrolytic graphite is initially high in defects. Following additional high-temperature annealing (3000°C and higher), the external appearance and x-ray structural analysis data of the material were similar to those of natural graphite single crystals. The heat conductivity, electrical conductivity, thermal expansion, and heat capacity of this graphite were studied. The electron heat conductivity was calculated at T<10°K. The mean defect-free area diameter in the crystalline lattice in the direction of the a-axis was 15000-18000 A. Characteristic crystalline lattice temperatures were calculated (θ_1=200°K, θ_2=1200°K). The width of the forbidden zone in the direction of crystallographic axis c was 0.7 ev.

1/1

1/2 027 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--METHODS FOR MEASURING THE THERMAL CONDUCTIVITY OF GRAPHITES -U-

AUTHOR-(04)-LUTKOV, A.I., VOLGA, V.I., DYMOV, B.K., ANUFRIYEV, YU.P.

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB. 1970, 36(3), 295-8

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--GRAPHITE, THERMAL CONDUCTIVITY, MATERIAL TEST

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/2138 STEP NO--UR/0032/70/036/003/0295/0298

CIRC ACCESSION NO--AP0125721

UNCLASSIFIED

2/2 027 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0125721

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONCORDANT RESULTS WERE OBTAINED BY MEASURING THE THERMAL COND. OF GRAPHITES USED IN CONSTRUCTION BY MEANS OF THE FOLLOWING METHODS: (1) AXIAL HEAT FLUX, (2) COMPARATIVE, (3) KOHLRAUSCH (1900), (4) POWELL AND SCHOFIELD (CA 33: 3649 PRIME5), AND (5) RADIAL HEAT FLUX WITH INDIRECT HEATING. THE THERMAL COND. PASSES THROUGH A MAX. IN THE 50-350DEGREESK INTERVAL. EXPTL. DETAILS GIVEN.

UNCLASSIFIED

LUTKOV, A. I.

Lutkov, A. I., B. K. Zymov, and V. I. Volga.
The relationship between thermal and electrical conductivities of graphite. I-EZh, V. 22, no. 5, 1972, 932. (Annotation).

An attempt to correlate thermal conductivity λ with electric resistivity δ of graphite at high temperatures is described. Many researchers previously noted that the $\lambda \times \delta$ product is constant to a certain degree, but only at room temperature.

Experimental λ and δ data in the range 50 - 2,500°K range are given and the $(\lambda \times \delta)$ values are calculated for artificial graphites with 1.0 - 2.26 g/cm^3 specific weights. At a low temperature, the $(\lambda \times \delta)$ of individual graphites varied significantly. At room temperature, $(\lambda = \delta)$ was nearly the same for the graphites studied. At T > 1,500°K, $(\lambda \times \delta) = 0.34 - 0.38$ V^2/degree and is independent of temperature for all graphites studied with the exception of those with lowest (1.0 g/cm^3) and highest (2.26 g/cm^3) specific weights.

Yarosin, V. I., and A. Ye. Blazhkov.
Thermal boundary layer on a nonisothermal plate. IVUZ Aviatsionnaya tekhnika, no. 1, 1972, 119-123.

The equation of energy of a compressible laminar boundary layer on a semi-finite plate with different local boundary conditions is analyzed. It is assumed that the $0 \leq \xi \leq 1$ area of the leading edge, where $\xi = x/l$ and l is the longitudinal coordinate, is cooled to a constant temperature T_{wo}, and its equation of energy is solved by the known Crocco integral. Using this integral and a

USSR

UDC 661.666:548.73:658.562

LUTKOV, A. I., VOLGA, V. I., and DYMOV, B. K.

"Methods of Determining the Average Size of Graphite Crystals in the Basal Plane"

Moscow, Zavodskaya Laboratoriya, Vol 39, No 10, Oct 73, pp 1201-1203

Abstract: Methods are described for determining the average size of graphite crystals in the basal plane. These methods are based on establishing the temperature relationships of thermal conductivity and resistivity. Measurement were made for isotropic, slightly anisotropic, anisotropic and high anisotropic grades of graphite with average size determined by both electrical and thermal measurements. The size of the crystals was determined by using a modified Debye equation and by the relationship between the average size of a grain and the temperature of minimum resistivity. Both methods yielded similar values for the different forms of graphite mentioned above. One table, nine bibliographic references.

1/1

USSR UDC 536.63.546.26-162

LUTKOV, A. I., DYMOV, B. K., and VOLGA, V. L.

"The Relationship Between Thermal Conductivity and Electric Conductivity in Graphite"

Minsk, Inzhenerno-Fizicheskiy Zhurnal, Vol 22, No 5, 1972, p 932

Abstract: It is known that the thermal conductivity and electric conductivity of graphite are not subject to the law of Wiedemann-Franz. Heat transfer in graphite is accomplished by phonons, electric conductivity is determined by the motion of electrons and vacancies. Nevertheless, a number of researchers has noted that at room temperature, the product of thermal conductivity and electric resistivity is to a certain degree constant. However, no attempts have been undertaken to link these properties at high temperatures.

In the article are presented results of the measurement of thermal conductivity λ and electric resistivity ρ, and the product of these values, $\lambda \times \rho$, has been calculated within the range of 80 to 2500°K for artificial graphites with a volumetric weight from 1.0 to 2.26 g/cm^3.

It was established that at low temperatures the values of $\lambda \times \rho$ of various graphites differ considerably. At room temperature, the values of $\lambda \times \rho$

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USSR

LUTKOV, A. I., et al., Inzhenerno-Fizicheskiy Zhurnal, Vol 22, No 5, 1972, p 932

of the investigated graphites are close to one another. Finally, at T > 1500°K, for all the investigated graphites with the exception of graphites with the least (1.0 g/cm^3) and the greatest (2.26 g/cm^3) volumetric weight, the value of $\lambda \times \rho$ is equal to 0.34-0.38 volt^2/degree and does not depend upon temperature.

This article has been deposited at the All-Union Institute of Scientific and Technical Information of the State Committee of the Council of Ministers, USSR, for Science and Technology and of the Academy of Sciences, USSR, Register No 3851-71 Dep. (The article was received by the editors 9 Dec 1970, the abstract was received on 15 Nov, 1971. The complete text is 0.5-a.l. (expansion unknown), 9 references).

2/2

1/2 052 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--INFLUENCE OF THE NUMBER OF PORES AND THEIR DIMENSIONS ON THE THERMAL CONDUCTIVITY OF POROUS GRAPHITES -U-

AUTHOR-(04)-LUTKOVA, A.I., MUSTAFINA, F.N., TSAREV, V.YA., KUZNETSOVA, N.P.

COUNTRY OF INFO--USSR

SOURCE--KHIM. TVERD. TOPL. 1970, (3), 107-14

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--THERMAL CONDUCTIVITY, GRAPHITE, POROSITY, THERMAL EFFECT, RADIATION EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0855 STEP NO--UR/0467/70/000/003/0107/0114

CIRC ACCESSION NO--AP0137883

UNCLASSIFIED

2/2 052 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0137883

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SPECIMENS OF TWO TYPES OF GRAPHITE WITH POROSITY CHANGING 54-78PERCENT WERE PREPD. WND THE EFFECTIVE THERMAL COND., LAMBDA, WAS INVESTIGATED AT 500-2600DEGREESK. THE EFFECTIVE DIAM. OF PORES WAS 50-700 MU. THE PREDOMINANT INFLUENCE OF CONDUCTION OF HEAT ON THE LAMBDA VALUE WAS OBSD. WHILE RADIATION AND CONVECTION INCREASED LAMBDA TO 8PERCENT MAX. AT SMALLER THAN OR EQUAL TO 2300DEGREESK.

UNCLASSIFIED

USSR

UDC 539.217.1 + 549.212

KUZNETSOVA, N. P., LUTKOVA, A. I., MUSTAFINA, F. N., and TSAREV, V. YA.

Effect of the Number of Pores and Their Size on the Heat Conductivity of Porous Graphites"

Moscow, Khimiya Tverdogo Topliva, No 3, May-Jun 70, pp 107-114

Abstract: The effective heat conductivity of two types of porous graphite materials was studied in the 500-2600° K range. The materials of the first type were subdivided into five groups with practically the same general porosity (60-65 percent), but with varying effective pore diameter. The four groups of the second type of materials had a varying general porosity, but a similar effective pore diameter. The heat conductivity was measured by the tube method under indirect heating of the specimen at 500-1000° K, and by the Powell-Schofield method at 1200-2600° K. There was found to be good agreement between the results obtained by both methods. The principal com-

USSR

KUZNETSOVA, N. P., et al., Khimiya Tverdogo Topliva, No 3, May-Jun 70, pp 107-114

ponent of the effect heat conductivity of porous graphites is contact heat conductivity. The proportion of the radiation component and the component caused by the heat conductivity of the gas filling the pores does not exceed 8 percent of the effective heat conductivity of the material at temperatures below 2300° K. A study was made of the applicability of the Russel, Loeb and Eucken formulas for calculating the effective heat conductivity of porous graphites. Calculations of the effective heat conductivity at a temperature below 1000° K according to the Russel formula were found to give satisfactory agreement with experimental data.

2/2

USSR

UDC 531.717.2.087.92:62-531.6.088.6

LUTOVINOV, B. V., PAYKIN, I. M., POPOV, N. R.

"Compensation for Axial Beating of Bearings with Rolling Friction"

Vestn. Khar'kov. Politekhn. In-ta [Herald of Khar'kov Polytechnical Institute], 1972, No 66, pp 31-34, (Translated from Referativnyy Zhurnal, Metrologiya i Izmeritel'naya Tekhnika, No 7, 1972, Abstract No 7.32.164, from the Resume).

Translation: A device for compensation of axial beating of a bearing with rolling friction with reciprocating and rotary motion of the shaft is studied. Compensation is achieved by introducing a signal from an axial shaft bearing sensor as a correcting component to the regulation of drive speed of the reciprocating motion. The device developed, in combination with design changes of the bearing unit, allows axial beating to be compensated with an accuracy of at least 0.2 μ which, in turn, allows the accuracy of maintenance of the rate of motion to be increased. 2 Figures; 2 Biblio. Refs.

1/1

USSR

UDC 518:517.91/.94

LUTOVINOV, V. M.

"Variant of Numerical Method and Problems of Boundary Layer Stability"

Uch. Zap. Tsentr. Aero-Gidrodinam. In-ta (Scientific Notes of the Central Aero-Hydrodynamic Institute), 1970, Vol 1, No 2, pp 121-123 (from RZh-Matematika, No 9, Sep 1970, Abstract No 9B582, by I. Shelikhova)

Translation: A solution is given for a boundary value problem in a system of second-order differential equations using a variant of a numerical method based on concepts of the numerical method of Gal'fand and Lokutsiyevskiy. The problem is reduced to the Cauchy problem for a system of first-order differential equations that is solved by a reverse numerical method. It is noted that the method described can be derived from the theory of factorization of a linear differential expression. It is shown that it is applicable in investigating stability of the boundary layer within the framework of linear theory: in particular, when investigating the problem of

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USSR

LUTOVINOV, V. M., Uch. Zap. Tsentr. Aero-Gidrodinam. In-ta, 1970, Vol 1, No 2, pp 121-123

the classification of values of parameters in the Orr-Sommerfeld equation as eigenvalues. The method described can be applied also for calculating jet stability.

2/2

USSR

LUTOVINOV, V. M.

"Version of the Dispersion Method and Problems of Boundary Layer Stability"

Uch. zap. Tsentr. aerogidrodinam. in-ta (Scientific Notes of the Central Aerohydrodynamic Institute), 1970, Vol 1, No 2, pp 121-123 (from RZh-Mekhanika, No 11, Nov 70, Abstract No 11B769)

Translation: The dispersion method of solving the boundary problem for an ordinary second-order differential equation consists in the fact that one of the boundary conditions is transferred to another boundary by solving the Cauchy problem with high accuracy for an auxiliary system of equations (direct dispersion). The problem of eigenvalues thus reduces to a study of the compatibility of the boundary conditions. The author extends this procedure to a system of linear second-order differential equations and writes out the formulas for the special case to which the Orr-Sommerfeld equation reduces under the boundary conditions obtained in the problem of boundary layer stability.

1/1

Metrology, Surveying, Mapping, Graphics

UDC 621.317.08+519.281

USSR

LUTSENKO, B. N., and CHEYDO, G. P., Novosibirsk

"Limiting Accuracy for Estimating Systematic Errors in a Redundant Measuring Complex"

Novosibirsk, Avtometriya, No 6, 1970, pp 3-9

Abstract: This article is the continuation of an earlier paper by the two authors noted above, published in the No 5, 1970 issue of the same journal. The earlier paper analyzed two methods for estimating system error parameters, both of which were based on the application of structural redundancy in a combination of measuring instruments, with the difference that the first could determine only the system errors while the second could also determine the parameters of the measuring process. The present paper reinvestigates both these estimating procedures in greater detail and with greater attention to their accuracy, and indicates the upper limit of that accuracy. The authors consider a simple model with additive system errors, constant in time, for noncorrelated measurements of equal accuracy, and obtain the lower limit for the estimate dispersions. The possibility of using the method of structural redundancy for more complex system errors when they are multiplicative is also investigated.

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UNCLASSIFIED PROCESSING DATE--30OCT70

1/2 027

TITLE--LUBRICATING COATING -U-

AUTHOR-(05)-SENTYURIKHINA, L.N., RUBTSOVA, Z.S., PETROVA, L.N., LUTSENKO, G.A., VIONTSEK, N.I.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 265,447

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,

DATE PUBLISHED--09MAR70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CHEMICAL PATENT, PROTECTIVE COATING, LUBRICANT, CHEMICAL COMPOSITION, MOLYBDENUM DISULFIDE, SILOXANE, BENZENE DERIVATIVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/0482/70/000/000/0000/0000

PROXY REEL/FRAME--3003/1798

CIRC ACCESSION NO--AA0130631

UNCLASSIFIED

2/2 027 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AA0130631

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A LONG LASTING LUBRICATING COATING CONTAINS 60-75 WT. PERCENT MO DISULFIDE AND 25-40 WT. PERCENT POLYMETHYLPHENYLSILOXANE RESIN WITH A UNIT STRUCTURE ((ME SUB2 SIO)(PHSIO SUB1.5)(PH SUB2 SIO) SUB0.35).

UNCLASSIFIED

1/2 031 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--MATERNAL FETAL PROTEIN EXCHANGE IN WOMEN WITH HEART DISEASE -U-

AUTHOR--LUTSENKO, G.YE.

COUNTRY OF INFO--USSR

SOURCE--VRACHEBNOYE DELO, 1970, NR 3, PP 87-89

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--OBSTETRICS, HEART DISEASE, FETUS, PROTEIN METABOLISM, ALBUMIN, BLOOD SERUM, DIAGNOSTIC MEDICINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1986/0969 STEP NO--UR/0475/70/000/003/0087/0089

CIRC ACCESSION NO--AP0102908
UNCLASSIFIED

2/2 031 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0102908

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SYNCHRONOUS BIOCHEMICAL INVESTIGATIONS REVEALED DISTURBANCES OF PROTEIN METABOLIC PROCESSES BETWEEN MOTHER AND FETUS IN CASE THE MOTHER SUFFERS OF RHEUMATIC CARDIAC DISEASE. THIS WAS MANIFESTED BY REDUCTION OF TOTAL BLOOD SERUM PROTEIN IN THE FETUS AT THE EXPENSE OF A DISTINCT DECREASE OF ALBUMINS.

UNCLASSIFIED

UDC 547.558.1.07

USSR

FOSS, V. L., VEYTS, YU. A., LUTSENKO, I. F., Moscow State University imeni M. V. Lomonosov

"A Method of Making Dialkoxyphosphines"

Moscow, Otkrytiya, Izobreteniya, Pr myshlennyye Obraztsy, Tovarnyye Znaki, No 15, Apr 73, Author's Certificate No 374326, Div C, filed 9 Jul 71, published 14 Jul 73, p 53

Translation: This Author's Certificate introduces: 1. A method of making idalkoxyphosphines by reducing dialkyl chlorophosphites with subsequent recovery of the goal product by conventional methods. As a distinguishing feature of the patent, the process is simplified by using a boric hydride of an alkali metal as the reducing agent and carrying out the process in the presence of a tertiary amine such as trimethylamine in an organic solvent. 2. A modification of this method distinguished by the fact that dimethoxyethane or tetrahydrofuran is used as the organic solvent.

1/1

USSR

UDC 547.26'118

PROSKURNINA, M. V., CHEKHUN, A. L., LUTSENKO, I. F.

"Bis-hypophosphites (Tetraalkoxydiphosphines)"

Leningrad, Zhurnal Obshchey Khimii, Vol XLIII (CV), No 1, 1973, pp 66-69

Abstract: A report was made recently on the synthesis of tetraalkoxy diphosphines [A. L. Chekhun, et al., ZhOKh, No 40, 2516, 1970]. More detailed data are now presented on the methods of synthesizing this class of compounds and some of their properties. Two methods of synthesizing the tetraalkoxy diphosphines based on dialkoxyphosphines. The first method involves the interaction of dialkoxy phosphines with dialkylchloro phosphites:

$$(RO)_2PH + (RO)_2PCl \xrightarrow[-R_3N \cdot HCl]{R_3N} (RO)_2P{-}{-}P(OR)_2$$

This method does not permit tetraalkoxy diphosphines with the lowest radicals to be obtained. Thus, the reaction of dialkylchloro phosphites with tin hydrides in the presence of an organic base is proposed.:

$$2(RO_2)PCl + R'_3SnH + R''_3N \longrightarrow (RO)_2P{-}P(OR)_2 + R'_3SnCl + R''_3N \cdot HCl$$

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USSR

PROSKURNINA, M. V., et al., Zhurnal Obshchey Khimii, Vol XLIII (CV), No 1, 1973, pp 66-69

Some reactions of the tetraalkoxy diphosphines are also investigated (the reaction with sulfur, sulfuryl chloride, mercury bisacetaldehyde).

2/2

USSR

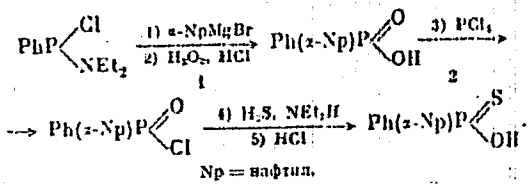
UDC 541.653+547.241

CHAUZOV, V. A., and LUTSENKO, I. F.

"Synthesis and Separation of Phenyl-α-naphthylthiophosphonic Acid into Enantiomers"

Leningrad, Zhurnal Obshchey Khimii, Vol XLIII (CV), No 1, 1973, pp 69-71

Abstract: One of the most general methods of splitting phosphorus-containing thioacids into enantiomers is the method of fractional crystallization of their salts with optically active amines from the appropriate solvents proposed by Aaron [H. S. Aaron, et al., J. Am. Chem. Soc., No 82, 596, 1960]. In the present paper an analogous method is used to split phenyl- α -naphthylthiophosphonic acid. Racemic phenyl- α -naphthylphosphonic acid was obtained by the following scheme:



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USSR

CHAUZOV, V. A., and LUTSENKO, I. F., Zhurnal Obshchey Khimii, Vol XLIII (CV), No 1, 1973, pp 69-71

The fractional crystallization of the salts of phenyl- α -naphthyl-thiophosphonic acid with quinine is highly efficient means of splitting this acid into enantiomers. Procedures are presented for obtaining the acids and separating mixtures of the diastereomeric salts.

2/2

USSR

UDC 547.241-31.1

NOVIKOVA, Z. S., GALITSKOVA, N. P. and LUTSENKO, I. F., Moscow State University imeni M. V. Lomonosov

"Isomerization of Alkenyl Esters of Phosphinous Acid and β-Ketophosphines"

Moscow, Doklady Akademii Nauk SSSR, Vol 203, No 3, 1972, pp 596-599

Abstract: This study follows earlier work by the authors on α-metallized (Hg, Sn) carbonyl co-pounds, in which they devised methods for synthesizing substituted vinyl esters of phosphinous acid and also the isomeric β-ketophosphines. The present study concerns a new rearranging of the alkenyl esters of diphenylphosphinous acid into β-ketoalkyldiphenylphosphines. Two isomeric compounds isopropenyl (I) and α-ethylvinyl (II) esters of diphenylphosphinous acid, along with their isomers diphenylacetonylphosphine (III) and 2-oxobutyldiphenylphosphine (IV) were investigated. Neither heating nor distillation of these effected any mutual transformations. However, the alpha-substituted vinyl esters of phosphinous acid, in the presence of various nucleophilic stannoorganic compounds, and also the salts of certain metals, were converted into isomeric β-ketophosphines. Reaction times ranged from 3 hours to 30 days for the eight esters tested. Data obtained are summarized in tabular form.

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UDC 547.341

USSR

NOVIKOVA, Z. S., ZDOROVA, S. N., LUTSENKO, I. F.

"Esters of Silicon-Substituted Benzylphosphonic Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol XLII (CIV), No 1, 1972, pp 112-117

Abstract: In order to synthesize the silyl-substituted benzylphosphonates, Arbuzov and Mikhaelis-Bekker reactions were performed with α-halogenbenzylsilanes. Direct silylation of trialkylhalogensilane diethylbenzylphosphonate was also carried out. As a result of the reactions, diethyl-α-trimethylsilylbenzylphosphonate (I) and diethyl-α-triethylbenzylphosphonate (II) were obtained:

$$(C_2H_5O)_3P + R_3SiCHC_6H_5 \rightarrow (C_2H_5O)_2P(O)CH-C_6H_5 + C_2H_5Br$$

(Br on the first reactant; SiR_3 on the product)

I,II

By silyllation of diethylbenzylphosphonate of trialkylchloromethylsilanes, β-silicon-substituted phosphonates were synthesized. The mobility of the trialkylsilyl radical in these compounds under the effect of nucleophilic reagents was investigated. A study of the properties of the synthesized compounds

1/2

USSR

NOVIKOVA, Z. S., et al., Zhurnal Obshchey Khimii, Vol XLII (CIV), No 1, 1972, pp 112-117

demonstrated that the α-silicon-substituted benzylphosphonates are easily subjected to alcoholysis.

UDC 547.241.341

USSR

NOVIKOVA, Z. S., GALITSKOVA, N. P., KOZLOV, V. A., and LUTSENKO, I. F.,
Moscow State University imeni M. V. Lomonosov

"Reaction of Diphenylphosphine and Potassium Diphenylphosphide With α-Mercurylated Aldehydes and Ketones"

Leningrad, Zhurnal Obshchey Khimii, Vol 41 (103), No 4, Apr 71, pp 831-838

Abstract: Reaction of diphenylphosphine with mercuribisacetaldehyde and the reaction of potassium diphenylphosphide with chloromercuryacetaldehyde in a solution of dimethoxyethane takes place with a transfer of the reactive center yielding vinyl ester of diphenylphosphinous acid. In contrast, α-mercurylated ketones react with these reagents in two ways, yielding α,β-substituted vinyl esters of the diphenylphosphinous acid (O-phosphorylation) and α-phosphorylated ketones (C-phosphorylation). The course of the reaction depends on the electron density at the phosphorus atom, on the structure of organomercury compound and on the type of solvent used. The reaction course involving the transfer of the reactive center with the formation of O-isomers is favored by higher electron density on the phosphorus atom, higher basicity, and coordination ability of the solvent. The opposite factors favor the reaction without a transfer of the reactive center to the 1,2-position, leading to the formation of C-isomers.

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UDC 547.241

USSR

MALYKHINA, I. G., KAZANKOVA, M. A., and LUTSENKO, I. F.

"Preparation of Copper Hydride Complexes With Trivalent Phosphorus Compounds"

Leningrad, Zhurnal Obshchey Khimii, Sep 71, Vol 41, No 9, pp 2103-2104

Abstract: Copper hydride obtained by reduction of copper sulfate with hypophosphorous acid is known to form stable complexes with trialkyl(aryl) phosphines and trialkyl phosphites. The presence of impurities in copper hydride specimens impairs the synthesis of corresponding complexes with trivalent phosphorus compounds. This study concerns fundamentally another method of obtaining copper hydride complexes involving the reduction of a corresponding copper halide complex with phosphines or phosphites using a suitable reducing agent. Triethylstannane was found to be most suitable agent. The reaction takes place readily at 0°C. If triisopropyl phosphite is used as the ligand, the copper hydride-to-ligand ratio in the complex obtained by reduction is 1/1. If, however, hexamethyltriamidophosphite is used as the ligand, then the complex shows 2 ligand molecules per 3 of copper hydride. It appears that coppper hydride complexes may be produced in various compositions depending on the method of synthesis. The yields are given.
1/1

UDC 547.246

USSR

NOVIKOVA, Z. S., MASHOSHINA, S. N., and LUTSENKO, I. F., Moscow State University imeni M. V. Lomonosov

"Reaction of Trialkylgermyl Dialkyl Phosphites With Unsaturated Compounds"

Leningrad, Zhurnal Obshchey Khimii, Sep 71, Vol 41, No 9, pp 2110-2111

Abstract: Trialkylgermyl dialkyl phosphites, as well as trialkylsilyl dialkyl phosphites, react with unsaturated compounds to form O- and C-organogermanium derivatives of phosphonates. Trialkylgermyl dialkyl phosphites have been synthesized from sodium dialkyl phosphites and triallylgermylchlorides in ether in 40-50% yield. Germyl phosphites readily react with sulfur, air oxygen and phenylazide. Trialkylgermyl phosphites treated with α,β-unsaturated compounds, ketones and carboxylates yield a mixture of O- and C-germanium-substituted phosphonates. Trialkylgermyl phosphites readily combine with acrylonitrile (30 mins., 80-100°C) with a good yield of an addition product over the C-C multiple bond -- diethyl β-trialkylgermyl-β-cyanoethylphosphonate. The yield is 70%. The reaction of trialkylgermyl diethyl phosphites with an equimolar amount of ketene yields a mixture of O- and C-germanium-substituted acetylphosphates.

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USSR

UDC 547.341

NOVIKOVA, Z. S., LUTSENKO, I. F., Moscow State University imeni M. V. Lomonosov, Moscow, Ministry of Higher and Secondary Specialized Education RSFSR

"Reaction of Trialkylsilyldialkylphosphites With Unsaturated Compounds"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 9, Sep 70, p 2129

Abstract: Trialkylsilyldialkylphosphites add easily to saturated and unsaturated carbonyl compounds. In the case of α,β-unsaturated aldehydes, ketones and carboxylic esters, a formation of one of the isomers or of a mixture of O- and C-siliconorganic derivatives of phosphonic acids is possible. For example, trimethylsilyldiethylphosphite (I) reacted with ethylacrylate or acrolein gives a mixture of O- and C-derivatives of trimethylsilylether. Mesityl oxide gives only the C-derivative, b.p. 109-110°/1 mm, d_4^{20} 0.9908, n_D^{20} 1.4470. With ketene the reaction occurs smoothly, yielding $(EtO)_2P(:O)-C(:CH_2)OSiMe_3$, b.p. 109-110/10 mm, d_4^{20} 1.0111, n_D^{20} 1.4355. Benzaldehyde reacted with (I) yields $C_6H_5CH(OSiMe_3)-P(O)(OR)_2$, b.p. 124-125/1-1.5 mm, d_4^{20} 1.0465, n_D^{20} 1.4825.

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USSR UDC 547.26'118 + 547.245

SAVAL'YEVA, N. I., KOSTYUK, A. S., BAUKOV, Yu. I., and LUTSENKO, I. F., Moscow State University imeni M. V. Lomonosov

"Reaction of Trialkylsilylketenes With Dialkyl Phosphites and Dialkyl thiophosphates"

Leningrad, Zhurnal Obshchey Khimii, Vol 41 (103), No 2, Feb 71, pp 485-486

Abstract: Dimethyl esters of α-trimethylsiloxyvinylphosphonic acid, b.p. 79°/2mm, n_D^{20} 1.4378, d_4^{20} 1.0556 and β-trimethylsiloxyvinylthiophosphonic acid b.p. 83°/2mm, n_D^{20} 1.4740, d_4^{20} 1.1214 were synthesized by the reaction of trialkylsilylketenes with dialkyl phosphites and dialkyl thiophosphites in presence of catalytic amounts of triethylamine. It is proposed that formation of the esters $CH_2{:}C(OSiR_3)P(X)(OR)_2$ is a secondary process going through the formation of $[R_3SiCH_2(CO)P(X)(OR)_2]$ analogously to the reaction of dialkyl phosphites and thiophosphites with ketene.

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UDC 547.26'118.07

USSR

LUTSENKO, I. F., and PROSKURNINA, M. V., Moscow State University imeni M. V. Lomonosov

"A Method of Making Dialkoxyphosphines"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 1, Jan 71, Author's Certificate No 289097, division C, filed 20 Nov 69, published 8 Dec 70, p 78

Translation: This Author's Certificate introduces a method of making dialkoxyphosphines. As a distinguishing feature of the patent, dialkylchlorophosphite is interacted with trialkyltin hydride with subsequent isolation of the goal product by conventional methods. The patent also covers a modification of this method distinguished by the fact that the process is carried out in an inert gas atmosphere such as argon.

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USSR UDC: 547.26'118

CHEKHUN, A. L., PROSKURNINA, M. V., LUTSENKO, I. F., Moscow State University imeni M. V. Lomonosov

"Tetraalkozydiphosphines"

Leningrad, Zhurnal Obshchey Khimii, Vol 40 (102), No 11, Nov 70, pp 2516-2517

Abstract: Two methods are developed for synthesizing a new class of organophosphorus compounds -- tetraalkoxydiphosphines: a) by condensing dialkylchlorophosphites with dialkoxyphosphines in the presence of triethylamine; b) by organotin hydride reduction of dialkylchlorophosphites with subsequent condensation of the resultant dialkoxyphosphine with dialkylchlorophosphite in the presence of an organic base. The first method produced both symmetric and asymmetric tetraalkoxydiphosphines. The second method can be used to produce tetraalkoxydiphosphines with lower radicals as well.

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USSR

UDC 547.23

LUTSENKO, I. F., PROSKURNINA, M. V., BORISENKO, A. A., Moscow State University imeni M. V. Lomonosov, Moscow, Ministry of Higher and Secondary Specialized Education RSFSR

"Dialkoxyphosphines -- Complete Esters of the Active Form of Hypophosphoric Acid"

Moscow, Doklady Akademii Nauk SSSR, Vol 193, No 4, Aug 70, pp 828-830

Abstract: The reaction of dialkyl chlorophosphites with trialkylstannanes yields dialkoxyphosphines. The reaction rate depends to a large degree on the alkyl group contained in the chlorophosphite molecule. Synthesized were di-isobutoxyphosphine, di-n-amyloxyphosphine, and di-n-butoxyphosphine, and their IR and NMR spectra were studied.

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1/2 008 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--O AND C,ORGANOMETAL,METALLOID,ISOMERS. IX. BETA,SILOXYVINYLACETIC ACID ESTERS -U-

AUTHOR-(03)-BURLACHENKO, G.S., BAUKOV, YU.I., LUTSENKO, I.F.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(1), 97-104

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ISOMERIZATION, ACETIC ACID, ESTER, ORGANOSILICON COMPOUND, ORGANOGERMANIUM COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1741 STEP NO--UR/0079/70/040/001/0097/0104

CIRC ACCESSION NO--AP0112728

UNCLASSIFIED

2/2 008 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0112728

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REACTION OF O,SILYLATED KETENE ACETALS WITH KETENES OPENS THE SI-O BOND AND FORMS ESTERS OF SILOXYVINYLACETIC ACID, WHICH ARE EASILY ISOMERIZED INOT ESTERS OF SILOXYCROTONIC ACID. SHOWN ON MICROFICHE.

FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA. MOSCOW, USSR.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--REARRANGEMENT OF AMIDES OF TRIALKYLGERMYLACETIC ACID TO N,TRIALKYLGERMYLACETAMIDES -U-
AUTHOR-(04)-BAUKOV, YU.I., BURLACHENKO, G.S., KOSTYUK, A.S., LUTSENKO, I.F.
COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(3), 707

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANOGERMANIUM COMPOUND, ACETIC ACID, ACETAMIDE, ISOMERIZATION, NMR SPECTRUM, ORGANOSODIUM COMPOUND, ORGANOSILICON COMPOUND, INTERMOLECULAR MECHANICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0868 STEP NO--UR/0079/70/040/003/0707/0707

CIRC ACCESSION NO--AP0124531
UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0124531

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HEATING ET SUB3 GECH SUB2 CONHME TO 140-50DEGREES RESULTS IN ITS ISOMERIZATION INTO ACNMEGEET SUB3, WHICH WAS CHARACTERIZED BY ITS NMR SPECTRUM. ALSO USED TO FOLLOW THE REACTION. CL SUB3 GECH SUB2 CL AND RMGX GAVE R SUB3 GE CH SUB2 CL, WHICH WITH MG AND CO SUB2 GAVE R SUB3 GECH SUB2 CO SUB2 H, WHICH WITH CH SUB2:CO GAVE R SUB3 GECH SUB2 CO SUB2 AC, WHICH BY LOSS OF AC SUB2 O GAVE (R SUB3 GECH SUB2 CO) SUB2 O, WHICH PYROLYZED TO R SUB3 GECH:CO AND R SUB3 GECH SUB2 CO SUB2 H; THE YIELD OF THE KETENE, B SUB15 69-71DEGREES, N PRIME20 SUBD 1.4600, REACHED 40PERCENT, AND INTERMEDIATE STEPS GAVE 60-80PERCENT YIELDS. ALTERNATIVELY, PHCH SUB2 CO SUB2 ME TREATED WITH NAN(SIME SUB3) SUB2, THEN ME SUB3 SICL, GAVE PHCH:C(OME)OSIME SUB3; WITH GECL SUB4 AT 30DEGREES THIS GAVE PHC(GECL SUB3):C(OME)OSIME SUB3, WHICH PYROLYZED TO ME SUB3 SIOME AND PHC(GECL SUB3):CO IN 54PERCENT YIELD, B SUB1 71-3DEGREES, N PRIME20 SUBD 1.5524. TRIETHYLGERMYLKETENE AND MENH SUB2 GAVE ET SUB3 GECH SUB2 CONHME, 40PERCENT, B SUB0.05 98-9DEGREES, N PRIME20 SUBD 1.4821. FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR UDC 546.55-547.24

KAZANKOVA, M. A., MALYKHINA, I. G., TERENINA, M. B., and LUTSENKO, I. F., Moscow State Institute imeni M. V. Lomonsov

"Generation of Copper Hydride and its Complexes With Compounds of Trivalent Phosphorus"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 10, 1972, pp 2133-2137

Abstract: In order to improve on the purity of the copper hydride obtained from the Wurtz reaction, cuprous bromide was reacted with triethyltin in absolute tetrahydrofuran at -25°, giving pure copper hydride. The degree of purity of the product was determined by comparing its reaction with triisopropylphosphine with that of copper hydride obtained by the Wurtz method. The stabilizing influence of triisopropylphosphine was suggested to be due to the formation of pi bonds with the d orbitals of the metal, and therefore hexamethyltriaminophosphine was predicted to show an even stronger stabilizing influence. Various stoichiometric complexes of cuprous halides or copper hydride with hexamethyltriaminophosphine were prepared. These hydrides had higher melting points than the corresponding triisopropylphosphine complexes. The halide complexes were also reduced to the corresponding hydrides and pure copper hydride with triethyltin. It was shown that the

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APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002201830004-1"

USSR

KAZANKOVA, M. A., et al., Zhurnal Obshchey Khimii, Vol 42(104), Vyp 10, 1972, pp 2133-2137

thermal stability of the complexes is inversely proportional to the number of ligands on a copper molecule. All reactions were carried out under dry argon.

USSR

UDC 547.26'118

VEYTS, Yu. A., BORISENKO, A. A., FOSS, V. L., and LUTSENKO, I. F., Moscow State University Imeni M. V. Lomonosov

"A New Rearrangement Among Organophosphorus Compounds"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 2, Feb 73, pp 440-441

Abstract: Oxidation of 1,1-diisopropyl-2,2-dibutoxydiphosphine with HgO gives a single product 1,1-diisopropyl-2,2-dibutoxydiphosphine, whose structure was confirmed by NMR ^{31}P analysis. The assumption was made that this unexpected result -- oxidation of the less basic "phosphite" center of the diphosphine may be a result of a rearrangement of an intermediate, direct oxidation product:

$$R_2\overset{O}{\overset{|}{P}}-P(OR)_2 \longrightarrow R_2P-O-P(OR)_2 \longrightarrow R_2P-P(:O)(OR)_2.$$

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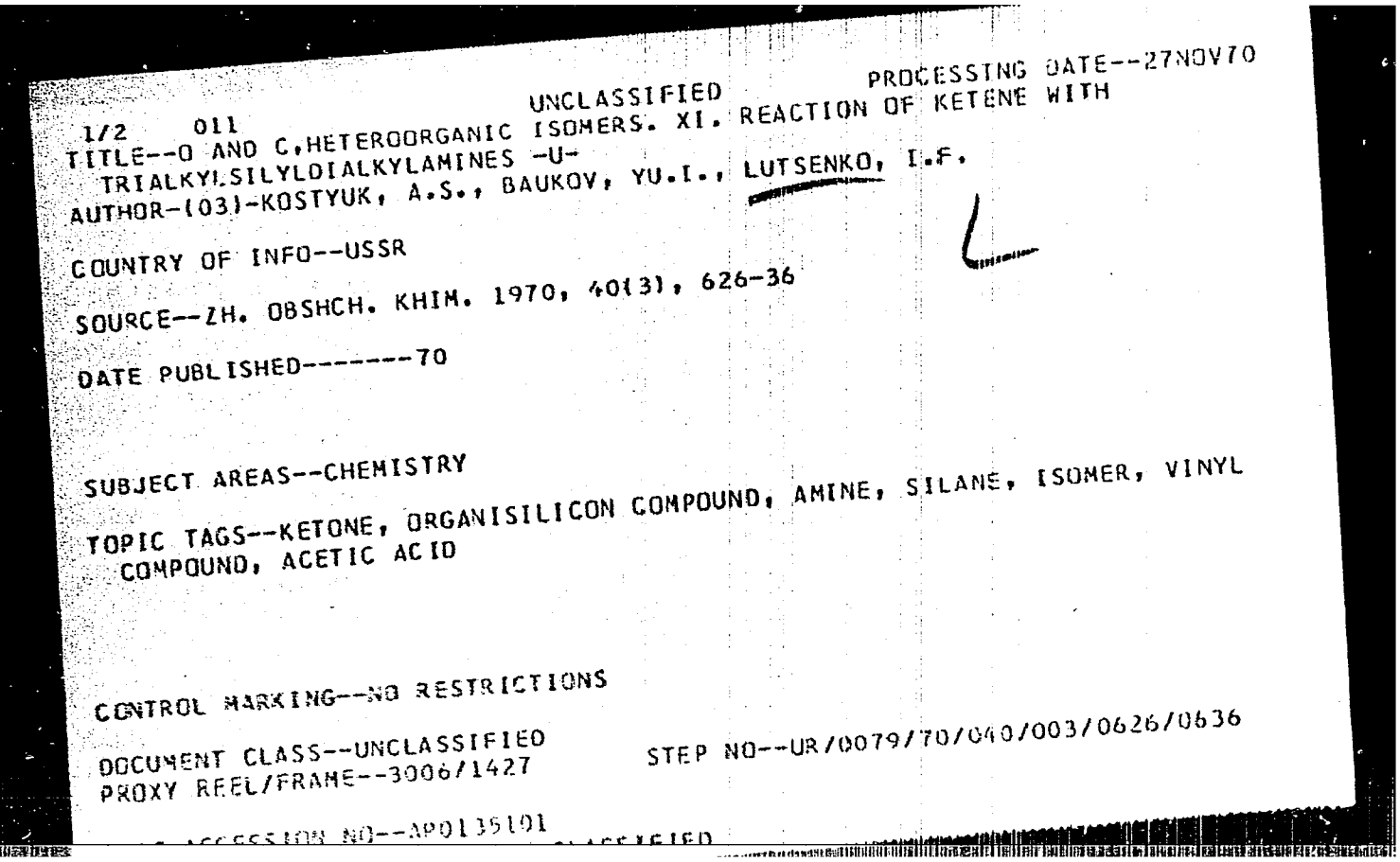


UNCLASSIFIED PROCESSING DATE--27NOV70

1/2 011

TITLE--O AND C,HETEROORGANIC ISOMERS. XI. REACTION OF KETENE WITH TRIALKYLSILYLDIALKYLAMINES -U-

AUTHOR-(03)-KOSTYUK, A.S., BAUKOV, YU.I., LUTSENKO, I.F.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(3), 626-36

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

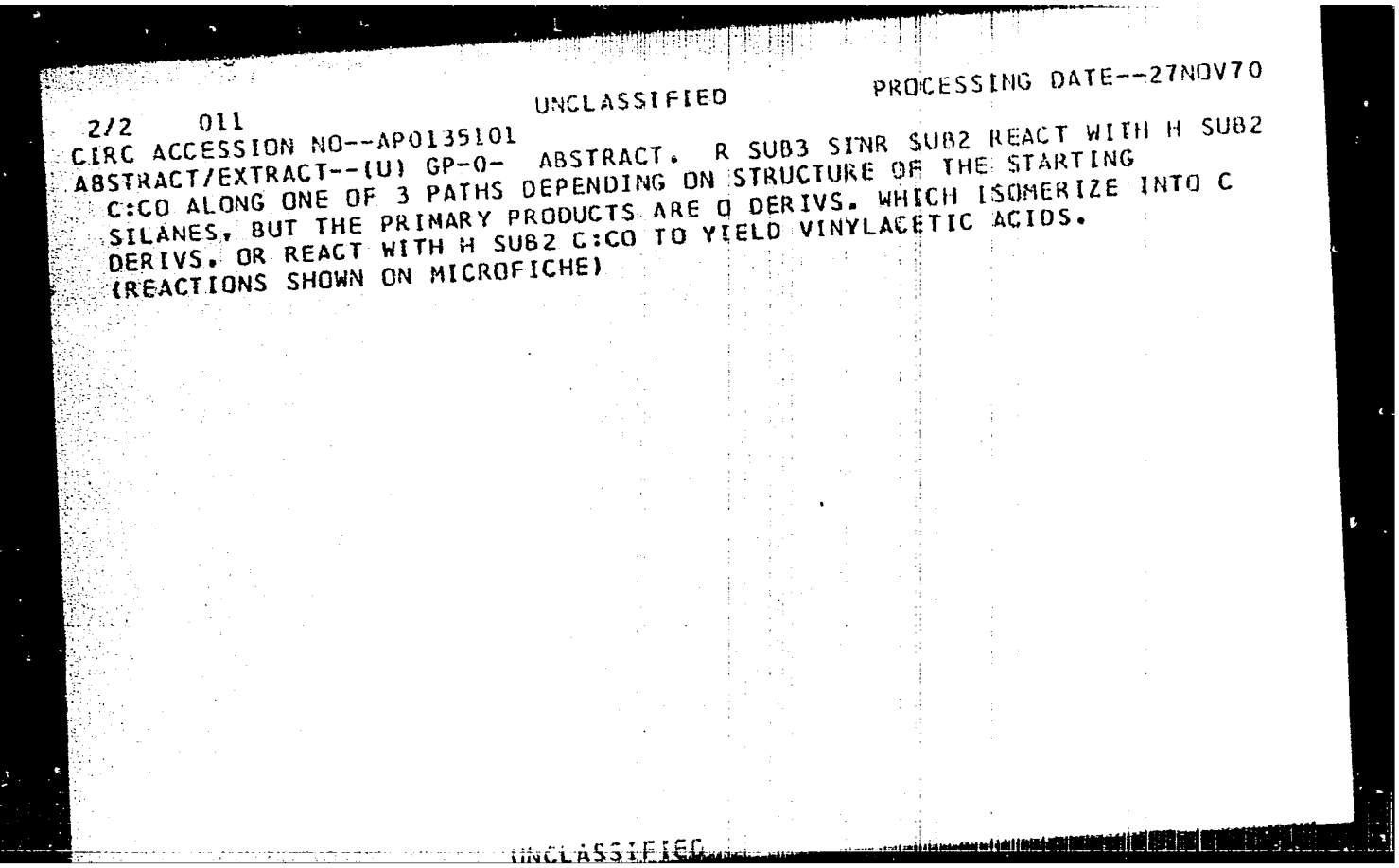
TOPIC TAGS--KETONE, ORGANISILICON COMPOUND, AMINE, SILANE, ISOMER, VINYL COMPOUND, ACETIC ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1427 STEP NO--UR/0079/70/040/003/0626/0636

ACCESSION NO--AP0135101 UNCLASSIFIED



UNCLASSIFIED PROCESSING DATE--27NOV70

2/2 011

CIRC ACCESSION NO--AP0135101

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. R SUB3 SINR SUB2 REACT WITH H SUB2 C:CO ALONG ONE OF 3 PATHS DEPENDING ON STRUCTURE OF THE STARTING SILANES, BUT THE PRIMARY PRODUCTS ARE O DERIVS. WHICH ISOMERIZE INTO C DERIVS. OR REACT WITH H SUB2 C:CO TO YIELD VINYLACETIC ACIDS. (REACTIONS SHOWN ON MICROFICHE)

UNCLASSIFIED

USSR

UDC 547.26'118

FOSS, V. L., VEYTS, YU. A., and LUTSENKO, I. F.

"New Method for Preparing Dialkoxiphosphines"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 4, 1972, p 954

Abstract: Dialkoxyphosphines can be prepared by reducing dialkyl chlorophosphite with lithium and sodium borohydrides. Dibutoxyphosphine was prepared in this manner and the structure verified. The advantages of this method are a reduction in reaction time from 2-6 days to 20-30 minutes and organic tin hydrides can be substituted for the lithium and sodium reagents.

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USSR

UDC 547.26'118

FOSS, V. L., VEYTS, YU. A., KUDINOVA, V. V., BORISENKO, A. A., and LUTSENKO, I. F., Moscow State University Imeni M. V. Lomonosov

"Synthesis of Alkylalkoxydiphosphines"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 5, May 73, pp 1000-1006

Abstract: The synthesis of a new type of unsymmetric diphosphines containing alkyl(aryl) and alkoxy(aryloxy) groups was developed. The first method is based on the reaction of dialkoxyphosphines with dialkylchlorophosphines in organic solvents (petroleum ether, benzene, diethyl ether, dimethoxyethane) and in presence of tertiary amines. This is an exothermic reaction, completed in 2-3 hrs. The second method is much slower, requiring several days for completion. It is based on the reaction of dialkyl(aryl)phosphines with dialkyl-(aryl) chlorophosphites under similar reaction conditions. Raising the reaction temperature does not help, since it leads to the formation of high-boiling by-products.

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USSR

UDC 621.793.6

KAYDASH, N. G., CHASTOKOLENKO, P. P., TKACHENKO, P. A., TATARCHUK, V. S., LUCHKO, M. V., LUTSENKO, L. I., Uman Pedagogical Institute

"Diffusion Titanation of Type 45 Steel"

Moscow, Zashchita Metallov, No 4, 1972, pp 508-509

Abstract: One promising method for increasing the heat resistance of steels is diffusion saturation of their surface with metals, particularly titanium. The authors studied the structure, composition, and certain properties of diffusion layers formed on type 45 steel upon saturation of the surface with titanium. This process forms dense coatings, firmly bonded to the base metal. Metallographic analysis has shown that the titanium coatings have a columnar structure. Their microhardness on the surface of the specimen is 330 kg/mm^2, decreasing linearly to 200 kg/mm^2 at 340 μ from the surface due to decreasing titanium concentration. The titanium coatings on type 45 steel consist of a phase with a body-centered cubic lattice with parameters a=2.8991 A on the surface of the specimen. The a=2.8768 A line of iron was also discovered in the same zone. At 900°C and less, the titanium-treated steel had heat resistance equal to type 1KH18N9T chrome-nickel steel, but was oxidized more strongly at 980°C.

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Composite Materials

UDC 661.666.2.661:665

USSR

DERGUNOVA, V. S., SHURSHAKOV, A. N., POSOS'YEVA, G. D., LUTSENKO, L. N.

"Certain Strength Properties of Composite Graphite-Zirconium Carbide Materials"

Kiev, Poroshkovaya Metallurgiya, No 8, Aug, 1972, pp 51-58.

Abstract: Results are presented from a study of the physical and mechanical properties of graphite-zirconium carbide and graphite-zirconium carbide-zirconium materials of various chemical compositions and structures. Strength properties were determined in the 20-2,500°C temperature interval using tensile-test specimens. Several factors influencing the strength of composite materials are studied. It is shown that the material with 75% graphite and 25% zirconium carbide has 30% higher tensile strength at 2,500°C than structural graphite type VPP. It is established that, by changing the degree of saturation of the zirconium phase of carbon, the physical and mechanical properties of the composition can be changed significantly. When there is residual zirconium present, in the 20-2,000°C temperature interval, the tensile and bending strengths are 1.5-3 times higher than when the carbide phase alone is present in the structure.

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USSR UDC 616.5-089.843-059:615.849.112-07:616.5-005-003.92-0

LUTSENKO, S. M. and BACHURIN, V. I., Chair of Faculty Surgery, Zaporozh'ye Medical Institute

"The Effect of Microwaves on Revascularization of the Blood Supply in Free Skin Grafts"

Moscow, Ortopedia, Travmatologiya, i Protezirovaniye, No 5, 1970, pp 76-78

Abstract: Rabbits were exposed to microwaves for one hour daily for a month, after which two skin flaps were cut from their sides and backs, exchanged, and sutured to the surrounding skin. Within two days flaps in the irradiated animals were edematous, and the epidermis began to slough off in large patches. Newly formed capillaries began to appear after 4 to 5 days, and blood first circulated one or two days later. By the end of the first week, the vessels reached the epidermis, but they were fragile and easily ruptured. After 10 to 12 days, epidermis covered the entire flap, where edges showed signs of necrosis. In control rabbits, on the other hand, the epidermis of the grafts did not progressively desquamate. Newly formed capillaries appeared after 3 days, and the blood began to circulate the next day. Final restoration of the blood supply in the flaps occurred on the 6th or 7th day, compared with the 8th or 9th day in irradiated animals. A study of patients receiving autografts for tropic ulcers caused by varicosities, extensive

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APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002201830004-1"

USSR

LUTSENKO, S. M., et al., Ortopedia, Travmatologiya, i Protezirovaniye, No 5, 1970, pp 76-78

injuries to soft tissues, or thrombophlebitis showed no differences in the rate of healing or time of restoration of circulation between those occupationally exposed to microwave radiation, and other types of patients. This suggests that safety precautions for those working with microwaves are adequate.

UDC 632.95

USSR

BOGOMOLOVA, L. M., LUTSENKO, V. A., and PYATNOVA, Yu. B.

"Study of Admixtures and Decomposition Products of Editon by Thin-Layer Chromatography"

V sb. Khim. sredstva zashchity rast. (Chemical Protection of Plants -- collection of works), No 3, Moscow, 1973, pp 139-143 (from RZh-Khimiya, No 22, 25 Nov 73, Abstract No 22N 550 by G. A. Kosminskaya)

Translation: Study of admixtures and decomposition products of commercial editon [3,3'-ethylene-bis-(4,6-dimethyltetrahydro-1,3,5-thiadiazinethion-2)] by thin-layer chromatography. Silicic acid is the best sorbent. Commercial editon contains ethylenethiourea (main admixture), ethylenethiuram-monosulfide, ethylenethiuram-disulfide, S, and a product of undetermined structure. After chromatographically pure editon is stored for 3 to 5 months, the chromatogram shows the same admixtures as a commercial sample. Moreover, the stability of editon decreases sharply when stored in solutions in which the content of ethylenethiourea and S increases perceptibly within a few hours.

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USSR UDC: 632.95

BOGOMOLOVA, L. M., LUTSENKO, V. A., PYATNOVA, Yu. B., Shchelkovo Affiliate of the All-Union Scientific Research Institute of Chemical Agents for Plant Protection

"A Method of Stabilizing 3,3'-Ethylene-bis-[4,6-Dimethyltetrahydro-1,3,5-Thiadiazinethione-2]"

USSR Author's Certificate No 345910, filed 12 Oct 70, published 18 Aug 72 (from RZh-Khimiya, No 10, May 73, abstract No 10N588P by T. A. Belyayeva)

Translation: In order to extend the storage time of 3,3'-ethylene-bis-(4,6-dimethyltetrahydro-1,3,5-thiadiazinethione-2), 2-5% of ethylene thiourea and/or thiourea is added. The results of analysis (with respect to CS_2) show that the chemical remains stable over an 8-month period.

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Acc. Nr: AP0052447 Abstracting Service: CHEMICAL ABST. 5/70 Ref. Code: UR0455

104477p Calculating the vapor-liquid equilibrium for multicomponent systems. Kafarov, V. V.; Boyarnova, A. I.; Lukashenko, V. A.; Vetokhin, V. N. (Mosk. Khim.-Technol. Inst. im. Mendeleeva, Moscow, USSR). *Teor. Osn. Khim. Tekhnol.* 1970, 4(1), 63–72 (Russ). A program for computing the vapor-liq. equil. in multicomponent systems is described. The 1st part of the algorithm is aimed at establishing the parameters A of the Wilson equations. Expressions are given for the activity coeff. of an arbitrary component of a multicomponent system and for detg. the parameters A from exptl. binary equil. data of all pairs of components participating in the vapor phase of the multicomponent system. The soln. is obtained by the method of successive approxns. and checked by the sum of the squares of deviations of the equil. systems from the data obtained exptl. for several control points. The functional dependence of the vapor pressure of the pure components on the temp. is approxed. either by using $P_i^s(t) = a_0 + a_1 t + a_2 t^2 + a_3 t^3 + \ldots$, or by the Antoine equation. The trend of calcd. unknown parameters is checked by use of a minimizing function. The systems studied were: Me_2CO-$CHCl_3$-EtOH; EtOH-methylcyclopentane (I)-benzene, and hexane-I-EtOH-benzene. Complete ALGOL programs are given for calcg. the parameters A and the compns. of the vapor phase of a binary system at const. pressure and of the vapor phase of a multicomponent mixt. at a given temp. Exptl. and calcd. data are tabulated. M. Selucky

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REEL/FRAME
19821081

1/2 007 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--CHLOROMETHYLATION OF DECYL ALCOHOL USING AN AQUEOUS SOLUTION OF FORMALDEHYDE -U-

AUTHOR-(03)-KORENKOVA, O.P., LUTSENKO, V.A., KOSHMAN, N.L.

COUNTRY OF INFO--USSR

SOURCE--KHIM. PROM. (MOSCOW) 1970, 46(5), 340-1

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--METHYLATION, ALCOHOL, CHEMICAL SYNTHESIS, FORMALDEHYDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0891 STEP NO--UR/0064/70/046/005/0340/0341

CIRC ACCESSION NO--AP0137919

UNCLASSIFIED

2/2 007 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0137919

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CLCH SUB2 OC SUB10 H SUB21 WAS PREPD. OPTIMALLY IN 90PERCENT YIELD WITH 94-5PERCENT CONVERSION OF C SUB10 H SUB21 OH BY ADMITTING HCL AT A RATE OF SIMILAR TO 8.8 L.-HR INTO AN AQ. 1:1.1-1.15 C SUB10 H SUB21 OH,CH SUB2 O MIXT. AT 15-20DEGREES.

UNCLASSIFIED

UDC 621.373.826.:621.396

USSR

LUTSENKO, V. I.

"Noise Signal due to the Backscattering of Laser Radiation by the Atmosphere"

V sb. Radioelektronika letatel'n. apparatov (Aviation Radio Electronics -- collection of works), Vyp.1, Khar'kov, Khar'kov. aviats. in-t, 1972, pp 52-55 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 D302)

Translation: The author studies the weakening of the radiation of a laser due to backscattering by the atmosphere. Relationships are given for the power of the atmosphere scattered, continuous, and pulsed laser radiation when the thickness of the scattering layer is commensurate or exceeds the distance to the object (target). The ratio is evaluated between the useful signal reflected from the target (whose angular dimensions are significantly greater than the width of the laser beam and the field of vision of the receiving telescope) and the noise evoked as the result of the backscattering of laser radiation by the atmosphere. Original article: two illustrations and four bibliographic entries. Resume.

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USSR

UDC 533.916

LUTSENKO, Ye. I., FAYNBERG, Ya. B., VASIL'CHUK, V. A., and SHEPELEV, N. P.

"Interaction of an Intense Electron Beam With Uniform and Nonuniform Plasmas"

Kiev, Fizika Plasmy i Problemy Upravlyayemogo Termoyadernogo Sinteza (Plasma Physics and Problems in Controlled Thermonuclear Synthesis -- collection of works) No 3, "Naukova dumka," 1972, pp 5-15

Abstract: Since the method of obtaining intense electron beams by accelerating plasma electrons with an external magnetic field is a difficult one, the authors have investigated the problem of obtaining such a beam in plasmas which are uniform or nonuniform along their lengths, and they have developed a device for attaining that aim. A diagram of the device and a description of its component parts are given, together with details of its calibration. Experiments were performed with it for both uniform and nonuniform plasmas; among their results are oscillograms of the plasma radiation and of the electron beam current at various voltages. The experiments showed that there is a limited amount of electron emission from the cold cathode, but this disappears at plasma concentrations of less than $10^{12}/cm^3$. The beam current attains a value of 1000 amp at a 40 kv level, although beams of much higher power can be obtained.

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USSR UDC 533.916

LUTSENKO, Ye. I., FAYNBERG, Ya. B., VASIL'CHUK, V. A., SHEPELEV, N. P.

"Interaction of an Intense Electron Beam With a Homogeneous and Nonhomogeneous Plasma"

Fiz. plazmy i probl. upravl. termoyader. sinteza. Resp. mezhved. sb. (Plasma Physics and Problems of the Controlled Thermonuclear Fusion. Republic Interdepartmental Collection), 1972, No. 3, pp 5-15 (from RZh-Fizika, No 11, Nov 72, Abstract No 11G249)

Translation: The problem of producing an intense electron beam in a plasma at a density of $10^{11} - 10^{13}$ cm^{-3} by accelerating electrons in it with an external electric field of 500-1000 v/cm of 0.5 μsec duration produced by an induction accelerator is investigated. An electron beam with a current above 1000 a and an energy close to the applied voltage was obtained with a particle concentration in the beam of $n_1 \sim 10^{11}$ cm^{-3}. The beam is produced in the precathode layer of plasma of thickness less than 2 cm, where the entire voltage applied to it is redistributed. As the beam passes through the plasma, about 1/3 of the beam current is lost as a result of beam instability with a frequency ω_{pe}, and the energy spectrum of the electron is diffused. Stabilization of the instability is achieved by the application of a plasma that is nonhomogeneous along the length.

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Recorders and Transducers

USSR UDC: 621.391.82:621.396.2

LUTSENKO, Ye. Ye., CHERNYY, G. P., BONDARENKO, V. P.

"A Device for Recording the Two-Dimensional Distribution Function of Pulse Noises in Communications Channels"

USSR Author's Certificate No 253117, filed 15 Apr 68, published 9 Mar 70, (from RZh-Radiotekhnika, No 2, Feb 71, Abstract No 2A281 P)

Translation: This Author's Certificate introduces a device which permits recording a two-dimensional distribution function of pulse noises (with respect to time rate) on magnetic tape with a high degree of reliability which is independent of the intensity of the pulse noise. A unit which shapes a pulse series is connected at the channel output between the output of the device and amplitude selectors with a common point which is connected to the input circuit through a circuit for isolating the noise voltage envelope. The number of pulses in the series is proportional to the maximum absolute value of the noise envelope which exceeds the operating threshold of the k-th selector, where k is the number of selectors which have operated. The device is connected to a channel which is not taken up with information. A. K.

1/1

USSR

RUBTSOV, M. I., SPORYKHIN, V. I., PERVUSHEVEKIY, V. P., MOROZOV, V. F., LUTSET, B. Ya., SHCHUKIN, L. I.

"Impulse Gas-Discharge Light Source"

Otkrytiya Izobreteniya Promyshlennye Obrazts Tovarnye Znaki, No 31, 1972, Patent No 355694.

Translation: 1. An impulse gas-discharge light source with an optically transparent tubular bulb, within which are a dielectric plate, used to elongate the discharge channel and electrode units assembled on one side of the bulb and separated by the plate, differing in that in order to increase the evenness of radiation in the plane perpendicular to the axis of the tube, increase the electrical breakdown resistance and limiting electrical loads on the discharge device, the dielectric plate is bent into a screw shape in the zone of the discharge, forming bifillar spiral channels with its two large edges, connected together by a channel, while the two small edges are hermetically sealed to the inside of the bulb, thus limiting the discharge channel.

2. A light source according to Claim 1, differing in that in order to increase the stability to the effects of mechanical loads, the electrodes are made as truncated cones, compressed against the side surface of the bulb wall.

(2)

USSR

RUBTSOV, M. I., SPORYKHIN, V. I., ET. AL., Otkrytiya Izobreteniya Promyshlennye Obraztsy Tovarnyye Znaki, No 5, 1972, Patent No 355694.

2/2

1/2 017 UNCLASSIFIED PROCESSING DATE- [illegible]

TITLE--FORMULATION OF BOUNDARY VALUE PROBLEMS IN THE DYNAMICS OF A WEAKLY RAREFIED GAS -U-

AUTHOR--LUTSET, M.O.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK SSSR, SIBIRSKOE OTDELENIE, IZVESTIIA, SERIIA TEKHNICHESKIKH NAUK, FEB. 1970, P. 35-37

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--BOLTZMANN TRANSPORT EQUATION, BOUNDARY VALUE PROBLEM, RAREFIED GAS, RARIFIED GAS DYNAMICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1273 STEP NO--UR/0288/70/000/000/0035/0037

CIRC ACCESSION NO--AP0124924

UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AP0124924
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF THE PROBLEM OF SPLICING THE SOLUTIONS TO THE BOLTZMANN EQUATION IN THE KNUDSEN LAYER AND THE OUTER REGION OF A WEAKLY RAREFIED GAS FLOW. IN DETERMINING THE THICKNESS OF THE KNUDSEN LAYER, PARTICULAR ATTENTION IS GIVEN TO THE POSSIBILITY OF SIMULTANEOUS ANALYSIS OF THE FIRST APPROXIMATION FOR THE OUTER AND INNER PROBLEMS. THE METHOD EMPLOYED IS SHOWN TO ELIMINATE A DIFFICULTY ARISING FROM THE FACT THAT THE DISTRIBUTION FUNCTION DOES NOT BECOME A NAVIER STOKES FUNCTION AT THE OUTER BOUNDARY OF THE KNUDSEN LAYER. FACILITY: AKADEMIIA NAUK SSSR, INSTITUT TEORETICHESKOI I PRIKLADNOI MEKHANIKI, NOVOSIBRISK, USSR.

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--18SEP70

1/2 019

TITLE--GASTROSCOPY IN THE DIAGNOSIS OF GASTROINTESTINAL HEMORRHAGES -U-

AUTHOR-(05)-STRUCHKOV, V.I., SOKOLOV, L.K., LUTSEVICH, F.V., BELOV, I.N., RYSHIKOV, V.N.

COUNTRY OF INFO--USSR

SOURCE--KHIRURGIYA, 1970, NR 3, PP 59-64

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DIAGNOSTIC METHODS, HEMORRAGE, BIOPSY, DIGESTIVE SYSTEM DISEASE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/0531/70/000/003/0059/0064

PROXY REEL/FRAME--1983/1320

CIRC ACCESSION NO--AP0054204

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--18SEP70

2/2 019
CIRC ACCESSION NO--AP0054204
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS CARRIED OUT GASTROSCOPIC INVESTIGATION IN 101 PATIENTS SUFFERING FROM GASTROINTESTINAL HEMORRHAGE OF DIVERSE ETIOLOGY. AN EARLY COMPLEX (CLINICO ROENTGENO ENDOSCOPIC) INVESTIGATION ENABLED TO REVEAL THE ORIGIN OF HEMORRHAGE IN 92 PATIENTS. ONLY ENDOSCOPICALLY THE SOURCE OF HEMORRHAGE WAS DISCLOSED IN 36 CASES. OF PARTICULAR IMPORTANCE ARE INVESTIGATIONS INVOLVING THE EMPLOYMENT OF NEW DESIGNS OF GASTROFIBROSCOPES WITH A DEVICE FOR CONTROLLED FLEXION OF THE DISTAL END OF THE APPARATUS AND AIMED BIOPSY. THE AUTHORS ARE OF THE OPINION THAT THE DATA DERIVED ARE PROOF OF THE EXPEDIENCY AND EFFECTIVENESS OF USING EMERGENCY GASTROSCOPY AT THE PEAK OF GASTROINTESTINAL HEMORRHAGE OR AT EARLY PERIODS AFTER ITS CESSATION. THE REFERRED TO EXPERIENCE TESTIFIES TO THE FACT THAT GASTROSCOPY IN GASTRIC HEMORRHAGE DOES NOT AGGRAVATE THE STATE OF PATIENTS. THE HAZARD OF GASTROSCOPY IN HEMORRHAGES IS EXAGERATED.

UNCLASSIFIED

Acc. Nr: AP0054294 Ref. Code: UR 9115

PRIMARY SOURCE: Ortopediya, Travmatologiya i Protezirovaniye, 1970, Nr 3, pp 52-57

SURGICAL TREATMENT OF CERVICAL OSTEOCHONDROSIS WITH ATTENDANT PATHOLOGY OF THE VERTEBRAL ARTERY AND ITS NERVOUS PLEXUS

Lutsik, A. A.

The author has studied 66 patients operated for pathology of the vertebral artery as a result of cervical osteochondrosis due to failure of the complex conservative therapy. Compression of artery by bony outgrowths of „unco-vertebral articulation" and traumatization of artery by the articular process in extension dynamic subluxation of the vertebrae was the most frequent cause of the so-called vertebral artery syndrome. Vertebral arteriography and cervical phlebospondylography through the vertebral body have been preferentially employed for study of the character and degree of artery pathology. Various methods of decompression of the constricted vertebral artery in conjunction with the diskectomy and intervertebral spondylodesis have been differentially used. The results of treatment of the basic and attendant syndromes of cervical osteochondrosis proved to be good.

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REEL/FRAME
19831432

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UDC 581.132

USSR

LUTSISHINA, YE. G. and GRODZINSKIY, D. M., Institute of Plant Physiology, Academy of Sciences UkSSR

"Application of Target Theory to the Study of Photosynthetically Active Chloroplast Units. II. Photoreduction of NADP"

Kiev, Tsitologiya i Genetika, No 1, 1970, pp 60-63

Abstract: In an earlier article, it was shown that target theory can be used to determine the configurations of the photosynthetically active centers responsible for photophosphoryiation and Hill's reaction with ferricyanide. The method has been employed here to study the active center responsible tor the photoreduction of NADP by isolated chloroplasts. Chloroplasts isolated from spinach leaves were lyophilized and exposed to gamma-rays, x-rays, neutrons, and alpha-particles in doses ranging from 10^4 - $5 \cdot 10^6$ rad. After the chloroplasts were suspended in tris buffer HCl (pH 8), the rate of reduction of ferricyanide was determined. The dose dependence of the reaction was exponential in character and dependent on the type of radiation, but independent of the dose rate. The results were

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USSR

LUTSISHINA, YE. G., et al., Kiev, Tsitologiya i Genetika, No 1, 1970, pp 60-63

used to construct dose-effect curves, of value in assessing the photosynthetic units responsible for the photoreduction of NADP. The configuration parameters were as follows: complete sensitive volume - $2.3 \cdot 10^5$ Å^3; molecular weight - $1.7 \cdot 10^5$; target width - 8 Å; target length - $3.7 \cdot 10^5$ Å; number of chlorophyl molecules - about 260.

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1/3 021 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--SELF DIFFUSION OF MERCURY, SULFUR, AND SELENIUM IN HGSE SUB1-X S SUBX AND HGTE SUB1-X S SUBX SOLID SOLUTIONS -U-
AUTHOR-(04)-KHARAKHORIN, F.F., GAMBAROVA, D.A., ZAYTOV, F.A., LUTSIV, R.V.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(3), 564-5

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--MERCURY COMPOUND, SELENIUM COMPOUND, SULFUR COMPOUND, SOLID SOLUTION, SINGLE CRYSTAL, ACTIVATION ENERGY, RADIOACTIVE ISOTOPE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/0865 STEP NO--UR/0363/70/006/003/0564/0565

CIRC ACCESSION NO--AP0118041
UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--16OCT70

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CIRC ACCESSION NO--AP0118041

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TEMP. DEPENDENCES OF SELF DIFFUSION COEFFS. OF S, SE, AND HG IN SINGLE CRYSTALS OF HGSE SUB1-X S SUBX AND HGTE SUB1-X S SUBX (X EQUALS 0.1-0.4) OF THE ELECTRONIC TYPE WITH A CURRENT CARRIER CONCN. OF SIMILAR TO 5 TIMES 10 PRIME18 CM PRIME NEGATIVE3 WERE STUDIED. THE STUDY OF THE SELF DIFFUSION WAS DONE WITH THE AID OF RADIOACTIVE ISOTOPES PRIME203 HG, PRIME75 SE, AND PRIME35 S BY THE METHOD OV REMOVING SUCCESS LAYERS. DIFFUSION ANNEALING OF THE SAMPLES WAS DONE IN EVACUATED QUARTZ AMPULS AT 200, 300, 350, AND 400DEGREES FOR 30-80HR. THE DIFFUSION PROCEEDED FROM THE GAS PHASE. WITH INCREASING S CONCN. IN THE HGSE SUB1-X S SUBX SYSTEM FROM 1 TO 36PERCENT, THE SELF DIFFUSION COEFF. OF S AT 300DEGREES DECREASES FROM 5 TIMES 10 PRIME NEGATIVE13 TO 1.1 TIMES 10 PRIME NEGATIVE13 CM PRIME2-SEC. THE DECREASED IN THE SELF DIFFUSION COEFF. WITH ITS INCREASED CONCN. IN THE SOLID SOLNS. INDICATES PREFERENTIAL DIFFUSION OF S ALONG THE HG VACANCIES. IN THE HGTE SUB1 NEGATIVEX S SUBX SYSTEM THE SELF DIFFUSION OF S PROCEEDS PRIMARILY ALONG THE S AND THE TE VACANCIES. UPON ANNEALING OF THE LATTER SOLID SOLNS. IN S VAPORS THE CARRIER CONCN. DECREASES FROM 10 PRIME18 TO 2 TIMES 10 PRIME17 CM PRIME NEGATIVE3. WITH INCREASING CONCN. OF S IN HGSE SUB1 NEGATIVEX S SUBX FROM 10 TO 30PERCENT, THE SELF DIFFUSION COEFF. OF SE AND HG INCREASES AND THE MAX. VALUES ARE AT X EQUALS 0.2. THE ACTIVATION ENERGY OF THE DIFFUSION OF HG IS 0.3 EV, AND THAT OF SE IS 0.67 EV. AFTER DIFFUSION ANNEALING IN HG VAPOR THE CARRIER CONCN. INCREASES FROM 1 TIMES 10 PRIME18 TO 6 TIMES 10 PRIME18 CM PRIME NEGATIVE3, WHEREAS THE MOBILITY DECREASES BY A FACTOR OF 2.

UNCLASSIFIED

3/3 021 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0118041

ABSTRACT/EXTRACT--WITH INCREASING ANNEALING TEMP. SE VAPORS (10 PRIME NEGATIVE4 TORR), THE CURRENT CARRIER CONCN. DECREASES FROM 1 TIMES 10 PRIME18 TO 2 TIMES 10 PRIME17 CM PRIME NEGATIVE3,

UNCLASSIFIED

USSR L UDC 546.48'22:548.55

LUTSKAYA, O. F., ORMONT, B. F., Leningrad Electrotechnical Institute imeni V. I. Ul'yanov (Lenin)

"The Thermodynamics of Vacancies Arising in Cadmium Sulfide Single Crystals Being Processed in Cadmium and Sulfur Vapors"

Moscow, Neorganicheskiye Materialy, Vol 6, No 5, May 70, pp 841-845

Abstract: The authors determined the electroconductivity of cadmium sulfide single crystals during thermal processing in Cd and S vapors and after hardening. The electroconductivity was expressed as a function of the partial pressure of sulfur vapor for the hardened samples. It was determined that oxygen may occupy sulfur vacancies, lowering the electroconductivity. A method was developed for thermal treatment of CdS_{1-y} single crystals in Cd and S vapors, permitting variations in temperature and vapor pressures with concurrent determination of electroconductivity. In this fashion it was determined that the charge connected with the sulfur vacancy in CdS_{1-y} was about 2. The

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LUTSKAYA, O. F., et al., Neorganicheskiye Materialy, Vol 6, No 5, May 70, pp 841-845

approximate enthalpy of the formation of ionized sulfur vacancies was calculated, using the curves obtained during the treatment of the material in cadmium and sulfur vapors.

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1/2 034 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--THE THERMODYNAMICS OF VACANCIES ARISING IN CADMIUM SULFIDE SINGLE CRYSTALS BEING PROCESSED IN CADMIUM AND SULFUR VAPORS -U-
AUTHOR-(02)-LUTSKAYA, O.F., ORMONT, B.F.

COUNTRY OF INFO--USSR

SOURCE--IZV. SSSR. MOSCOW, NEORGANICHESKIYE MATERIALY, VOL 6, NO 5, MAY 70, PP 841-845
DATE PUBLISHED----MAY70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--CADMIUM SULFIDE, SULFUR, METAL VAPOR, THERMODYNAMICS, SINGLE CRYSTAL, ENTHALPY, ELECTRIC CONDUCTIVITY, CRYSTAL VACANCY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/1538 STEP NO--UR/0363/70/006/005/0841/0845

CIRC ACCESSION NO--AP0133463
UNCLASSIFIED

2/2 034 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0133463

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS DETERMINED THE ELECTROCONDUCTIVITY OF CADMIUM SULFIDE SINGLE CRYSTALS DURING THERMAL PROCESSING IN CD AND S VAPORS AND AFTER HARDENING. THE ELECTROCONDUCTIVITY WAS EXPRESSED AS A FUNCTION OF THE PARTIAL PRESSURE OF SULFUR VAPOR FOR THE HARDENED SAMPLES. IT WAS DETERMINED THAT OXYGEN MAY OCCUPY SULFUR VACANCIES, LOWERING THE ELECTROCONDUCTIVITY. A METHOD WAS DEVELOPED FOR THERMAL TREATMENT OF CDS SUBI-Y SINGLE CRYSTALS IN CD AND S VAPORS, PERMITTING VARIATIONS IN TEMPERATURE AND VAPOR PRESSURES WITH CONCURRENT DETERMINATION OF ELECTROCONDUCTIVITY. IN THIS FASHION IT WAS DETERMINED THAT THE CHARGE CONNECTED WITH THE SULFUR VACANCY IN CDS SUBI-Y WAS ABOUT 2. THE APPROXIMATE ENTHALPY OF THE FORMATION OF IONIZED SULFUR VACANCIES WAS CALCULATED, USING THE CURVES OBTAINED DURING THE TREATEMNT OF THE MATERIAL IN CADMIUM AND SULFUR VAPORS.

FACILITY: LENINGRAD ELECTROTECHNICAL INSTITUTE IMENI V. I. UL'YANOV LENIN.

UNCLASSIFIED

USSR UDC 617.735-003.8-085.837.3

LUTSKER, L. S., and NURIYEVA, S. M., Branch for the Study of Physical Methods of Diagnosis and Medical Treatment in Ophthamology (Instructor, Professor Ye. Ye. S. Vaynshteyn) of the Moscow Scientific Research Institute of Eye diseases imeni Gel'mgol'ts (Director, Candidate of Medical Sciences K. V. Trutneva)

"Microwave and Ultrasound Therapy of Tapetoretinal Destruction"

Moscow, Vestnik Oftal'mologii, N5, 1973, pp 69-71

Abstract: A study was made of the therapeutic effect of microwaves separately and in conjunction with ultrasonics in the treatment of some forms of the degeneration of the retina. This is the first time microwave treatments have been used in the treatment of pigment degeneration. The test group was composed of 65 patients from 7 to 60 years old. Of these, 53 had pigmented retinas, 9 had a central degeneration of the Shtargart type, and 3 had a central degeneration of the Best type. Parameters for the microwave treatments were power - 20 volts, spacing - 9 cm, diameter of the emitter - 9 cm, length of the treatment - 10 to 15 minutes and 20 treatments daily. The ultrasonic treatments were conducted using an 800 kHz frequency, intensity - 0.3 volts/cm^2, 1/2

USSR

LUTSKER, L. S., and NURIYEVA, S. M., Vestnik Oftal'mologii, N5, 1973, pp 69-71

length of treatment - 5 minutes and 20 treatments daily. All patients treated showed an improvement in eyesight, the combined treatment of microwaves plus ultrasonics producing a greater response than either treatment used alone.

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1/2 019 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--INTRAMOLECULAR HYDROGEN BONDING AND REACTIVITY OF ORGANIC COMPOUNDS
-U-
AUTHOR-(03)-SADEKOV, I.D., MINKIN, V.I., LUTSKIY, A.YE.

COUNTRY OF INFO--USSR

SOURCE--USP. KHIM. 1970, 39(3), 380-411

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--HYDROGEN BONDING, IONIZATION, ALKYLATION, CHELATE COMPOUND, CHEMICAL REDUCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0076 STEP NO--UR/0074/70/039/003/0380/0401

CIRC ACCESSION NO--AP0125911

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--13NOV70

2/2 019

CIRC ACCESSION NO--AP0125911

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A REVIEW WITH 200 REFS. THROUGH 1968 COVERING THE EFFECTS OF H BONDING ON VARIOUS REACTIONS SUCH AS IONIZATION OF CARBOXYLIC ACIDS, ALKYLATION REACTIONS, DECARBOXYLATIONS, REDN., SUBSTITUTION, CHELATION AND BASCITY, INHIBITION OF REACTIONS BY INTERNAL H BONDING AND STABILIZATION OF COMPDS., THEREBY.

FACILITY: ROSTOV.-NA-DONU GOSUNIV., ROSTOV-ON-DON, USSR.

UNCLASSIFIED

1/2 032 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--DIPOLE RELAXATION OF LIQUID NITROANILINES -U-

AUTHOR-(02)-LUTSKIY, A.YE., SHALIMOV, M.F.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(3), 586-90

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANIC NITRO COMPOUND, ANILINE, DIELECTRIC CONSTANT, ENTHALPY, ENTROPY, HIGH FREQUENCY, COMPLEX COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0894 STEP NO--UR/0076/70/044/003/0586/0590

CIRC ACCESSION NO--AP0124557
UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--30OCT70

2/2 032

CIRC ACCESSION NO--AP0124557

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE VALUES OF REAL AND IMAGINARY COMPONENTS OF THE DIELEC. CONSTS. OF O, M, AND P-O SUB2 NC SUB6 H SUB4 NH SUB2 MELTS OVER 80-195DEGREES WERE MEASURED IN THE CM WAVE REGION (AT 4 WAVELENGTHS). CHARACTERISTICS OF THE DIPOLE RELAXATION OF THE NITROANILINES (LOSS ANGLE TANGENT, RELAXATION TIME(TAU), FREE ENTHALPY, ENTHALPY (DELTA H), AND ENTROPY OF ACTIVATION OF THE RELAXATION PROCESS) WERE CALCD. THE NITRO ANILINES OBEY THE DEBYE EQUATION. IN COMPARISON TO PHNH SUB2, TAU NITROANILINES WERE MARKEDLY HIGHER. THUS, AT 135DEGREES, TAU O, M, AND P-O SUB2 NC SUB6 H SUB4 NH SUB2 ARE 12, 14, AND 34 TIMES, RESP., THAT OF PHNH SUB2. THE INTRODUCTION OF THE NO SUB2 GROUP INCREASES (ESP. IN PARA POSITION) DELTA H. THESE CHANGES ARE DUE TO THE ASSOCN. OF ALL 3 ISOMERS BY INTERMOL. H BONDING NH O SUB2 N. THE NITRO ANILINES HAVE A 2ND HIGH FREQUENCY DISPERSION REGION, THE MECHANISM OF RELAXATION OF WHICH IS CONNECTED WITH ROTATION OF THE FREE TERMINAL GROUPS OF THE MOLS. IN THE COMPLEXES. FACILITY: KHAR'KOV. POLITEKH. INST., KHARKOV, USSR.

UNCLASSIFIED

1/2 027 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--STABILITY AND CONTROLLABILITY OF SUPERSONIC AIRCRAFT -U-

AUTHOR-(02)-LUTSKIY, V., GALASHEV, YE.

COUNTRY OF INFO--USSR

SOURCE--AVIATSIIA I KOSMONAVTIKA, MAY 1970, P. 34, 35

DATE PUBLISHED-------70

SUBJECT AREAS--AERONAUTICS

TOPIC TAGS--SUPERSONIC AIRCRAFT, AIRCRAFT STABILITY, AIRCRAFT CONTROL EQUIPMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/0720 STEP NO--UR/0209/70/000/000/0034/0035

CIRC ACCESSION NO--AP0134455
UNCLASSIFIED

2/2 027 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0134455

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF FACTORS AFFECTING THE STABILITY AND CONTROLLABILITY OF SUPERSONIC AIRCRAFT DURING TURNS ABOUT LONGITUDINAL AND VERTICAL AXES, WITH SPECIAL ATTENTION TO THE PERFORMANCE OF AILERONS AND RUDDER IN MAINTAINING CONTROL. CONDITIONS THAT CHANGE THE EFFECTIVENESS OF AILERONS AND RUDDERS DURING SUCH MANEUVERS ARE ANALYZED IN VARIOUS AIRCRAFT TYPES AT VARIOUS SPEEDS. SUGGESTIONS ARE GIVEN AS TO HOW THE LATERAL STABILITY AND CONTROL CAN BE BEST MAINTAINED IN SUPERSONIC AIRCRAFT.

UNCLASSIFIED

1/2 034 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--STABILITY AND CONTROLLABILITY OF SUPERSONIC AIRCRAFT -U-

AUTHOR-(02)-LUTSKIY, V., GALASHEV, YE.

COUNTRY OF INFO--USSR

SOURCE--AVIATSIIA I KOSMONAVTIKA APR. 1970, N. 25-27

DATE PUBLISHED-----APR70

SUBJECT AREAS--AERONAUTICS, PHYSICS

TOPIC TAGS--AERODYNAMIC STABILITY, AERODYNAMIC CONTROL, SUPERSONIC AIRCRAFT, AIRCRAFT DESIGN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0261 STEP NO--UR/0209/70/000/000/0025/0027

CIRC ACCESSION NO--AP0124023

UNCLASSIFIED

2/2 034 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0124023

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF VARIOUS FORMS OF SUPERSONIC AIRCRAFT STABILITY WITH SPECIAL ATTENTION TO LATERAL STABILITY UNDER THE ACTION OF AERODYNAMIC FORCES AND MOMENTS DIRECTED LATERALLY WITH RESPECT TO THE LONGITUDINAL AND TRANSVERSE AXES OF AIRCRAFT. THE IMPORTANT ROLE OF DIRECTIONAL AND WEATHERCOCK STABILITIES FOR THE CONTROLLABILITY OF SUPERSONIC AIRCRAFT IS NOTED. AIRCRAFT DESIGN CONSIDERATIONS IMPROVING AIRCRAFT SITUATIONS ARISING DURING SUPERSONIC FLIGHTS IN TERMS OF STABILITY AND CONTROLLABILITY ARE ALSO CONSIDERED.

UNCLASSIFIED

USSR

LEBEDEV, A. N., and LUTSKIY, V. A.

"Polyphase Nature of Evoked Potential Is a Result of the Reactive Consolidation of Background Oscillations"

Moscow, Biofizika, Vol 18, Vyp 2, Mar/Apr 73, pp 397-399

Abstract: Using the equation derived in earlier works, theoretical and experimental results are compared. Statistical analysis of more than 100 background pulse sequences obtained from the rabbit brain cortex showed that most of them were within 20-60 msec. intervals. The time interval between the primary and secondary positive variations evoked by visual, sonic, and electric (skin) stimulations was never below the calculated interval (20-40 msec.). The lowest interval amounts to 10-15 msec. according to theory. The post stimulation histogram of the pulsed discharges of neurons also corresponded well to the theoretical. The characteristic configuration features of the evoked potentials in the cerebral cortex of rabbits are attributed to frequency range of individual central neurons. The shape of the evoked potentials (plotted in 2 figures) was the result of changes in the membrane potentials of single neurons.

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UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

242497 BINARY SUMMATOR suitable for a digital computer has been designed and contains two resistors 1 and 2, the emitters of which are connected through a common resistor 3 to the displacement source - E2. The transistor base 2 is earthed and base of transistor 1 through resistor 4 is connected to the displacement source and through diode 5 to the entry of circuit 6 (through resistor 7).

21.12.67 as 1205608/18-24.A.P.BUDENNYI et al.
(5.9.59) Bul 15/25.4.69. Class 42m3. Int.Cl.G 06f.

AUTHORS: Budennyy, A. P.; Lutskiy, V. A.; Kontarev, V.Ya.; Nazarov, S. I.; Kremarenko, O. L; Shishkevich, A.A.

19820296

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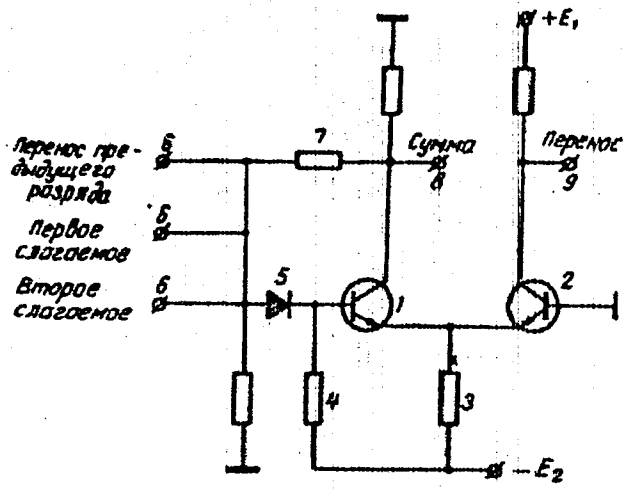

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1/2 017 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--ENERGY SPECTRUM OF ELECTRONS IN BISMUTH FILMS STUDIED BY THE TUNNEL EFFECT -U-

AUTHOR-(03)-KORNEYEV, D.N., LUTSKIY, V.N., YELINSON, M.I.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(5), 1333-5

DATE PUBLISHED-------70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., PHYSICS, MATERIALS

TOPIC TAGS--TUNNEL EFFECT, BISMUTH COMPOUND, ELECTRON ENERGY LEVEL, ELECTRON SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0971 STEP NO--UR/0181/70/012/005/1333/1335

CIRC ACCESSION NO--AP0133057

UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0133057

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DIFFERENTIAL CHARACTERISTICS OF TUNNEL SYSTEMS CONTG. FILMS OF BI WERE MEASURED. THE ABOVE CHARACTERISTICS HAVE AN OSCILLATORY CHARACTER, DETD. BY DIMENSIONAL QUANTIZATION OF THE ELECTRONIC SPECTRUM IN THE THIN FILMS. A PICTURE WAS OBTAINED OF THE DISTRIBUTION OF QUASIDISCRETE LEVELS IN A FILM OF FIXED THICKNESS. FACILITY: INST. RADIOTEKH. ELEKTRON., MOSCOW, USSR.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--MATERIALS ON THE EXPERIMENTAL STUDY OF THE EFFECT OF TOXOTOXIN ON DEVELOPMENT OF CHICK EMBRYOS -U-

AUTHOR-(03)-YYGISTE, A.K., KPOLUS, M.O., LUTSOYA, KH.I.

COUNTRY OF INFO--USSR

SOURCE--MEDITSINSKAYA PARAZITOLOGIYA I PARAZITARNYYE BOLEZNI, 1970, VOL 39, NR 3, PP 282-284

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--EMBRYOLOGY, TOXIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0209 STEP NO--UR/0358/70/039/003/0282/0284

CIRC ACCESSION NO--AP0123977

UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123977

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TERATOGENIC EFFECT OF THERMOSTABLE AND THERMOLABILE COMPONENTS OF TOXOTOXINE WAS STUDIED IN CHICK EMBRYOS. THE RATE OF EMBRYOPATHIES IM EMBRYOS TREATED WITH TOXOTOXINE DID NOT DIFFER SIGNIFICANTLY FROM THAT IN EMBRYOS RECEIVING PHYSIOLOGICAL SALINE. AT THE SAME TIME, 0.25PERCENT SOLUTION OF PHENOL EXERTED A MARKED TERATOGENIC EFFECT. FACILITY: TALLINSKIY NAUCHNO ISSLED. INSTITUT EPIDEMIOLOGII, MIKROBIOLOGII I GIGIYENY.

UNCLASSIFIED

USSR UDC: 621.386.8:531.781.2

LUTSYAK, V. G., CHURSINA, Z. S.

"An X-Ray Method of Measuring Residual Stresses in Massive Parts"

V sb. Materialy Konferentsii molodykh metallurgov. Donetsk. n.-i. in-t chern. met., 1968 (Materials of the Conference of Young Metallurgists. Donetsk Scientific Research Institute of Ferrous Metallurgy, 1968), Donetsk, "Donbass", 1970, pp 233-234 (from RZh-Metrologiya i Izmeritel'naya Tekhnika, No 11, Nov 70, Abstract No 11.32.398)

Translation: A brief description is given of an installation which can be used to take radiograms in directions normal to the surface and at angles. The elevating and rotating mechanism permits the x-ray tube to be moved in space over a sphere of 300 mm radius around the point to be examined on the surface of the metal. P. N. A.

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UDC: 669.131.6-122.74-6.75

USSR

BRAYNIN, I.YE., GUDOROVA, V.L., [illegible] KULINCHENKO, V.P., KUSHNIR, YA.P., ZHUNEVA, N.D., and CHURSINA, Z.S., Donets Polytechnic Institute and Donets Scientific-Research Institute of Ferrous Metallurgy

"Nature of Nonmetallic Inclusions in Titanium-Modified Cast Iron"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 5, 1970, pp 141-143

Abstract: Investigations were conducted of the nature of nonmetallic inclusions in cast iron with various (from 0.05 to 0.78%) titanium supplements to determine the role of the latter in the graphitization of basic blast-furnace cast iron used for casting of large-mass ingot molds. Samples were taken from ingot molds, modified with brand TG-ChM (96-98% Ti) titanium sponge, and from cast iron ingots, remelted in an induction furnace from conversion cast iron of the following composition (%): 4.14 C, 0.67 Si, 0.42 Mn, 0.041 S, 0.07% P. Metallic titanium (99.7% pure) was introduced into the molten cast iron at a temperature of 1400°C. The nonmetallic inclusions were studied by x-ray structural analysis of electrolytically-separated deposits and also by a local x-ray method directly on slides. Metallographic investigation of the experimental samples indicated that the addition of titanium caused a whole series of inclusions, the amount of which

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USSR
BRAYNIN, I.YE., etal, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 5, 1970, pp 141-143

increases with a rise in titanium content. The following compounds were detected: TiO, FeO TiO_2, TiO_2, Ti_3S_4, $TiMn_2$, Ti_2O_3, Ti (C, N); titanium nitrides in pure form were seldom encountered. The absence of contact of titanium compounds with graphite and enlargement of dimensions of the latter were established. This confirms the work of V.L. Gutorova, in which it was postulated that nonmetallic titanium inclusions are not graphitization centers. The increased resistance of large-mass ingot molds, cast from basic blast-furnace cast iron modified with titanium sponge, is associated with the enlargement of graphite flakes and with the increase in the ferrite content in the metal base caused by the indirect action of titanium, (binding oxygen and nitrogen into stable compounds) and by the action of hydrogen, introduced by the titanium sponge.

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Acc. Nr. AP0034144 Abstracting Service: CHEMICAL ABST. 4-70 Ref. Code UR 0078

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74275b Reaction of a double molybdate of lanthanum and an alkali metal with alkali metal molybdates in melts. Mokhosoev, M. V.; Kokot, I. F.; Lutsyk, V. I.; Kononenko, L. S. (USSR). *Zh. Neorg. Khim.* 1970, 15(1), 271–5 (Russ). Phase diagrams of the system $MLa(MoO_4)_2$–$M_2'MoO_4$ (where M = M' = Li, Na, K, Rb, Cs) are constructed. Systems with Li and Cs salts are simple eutectic systems, with eutectic contg. 90 and 67 mole % $M_2'MoO_4$, m. 660 and 740°, resp. The remaining systems form the following compds.: incongruently, m. 680° $Na_3La(MoO_4)_4$, and congruently m. 860 and 835° $K_3La(MoO_4)_4$ and $Rb_3La(MoO_4)_4$, resp. HMJR

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